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Rural crisis and rural exodus? Local migration dynamics during the crisis of the 1840s in Flanders (Belgium)☆

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Abstract

This article analyses the migration dynamics in the wake of the 1845–1847 subsistence crisis in Flanders by means of a quantitative analysis of key demographic and economic data at municipal level. The data are unique in that they allow to directly measure in-migration and out-migration at the level of individual villages and towns. The results show that contrary to the powerful image of a push-driven rural exodus, it was not the villages hardest hit by the crisis that recorded the highest levels of migration. Rather, in-migration and out-migration rates often moved in tandem, and were determined primarily by existing migration traditions.

Keywords: Migration; Nineteenth century; Rural crisis; Belgium; Flanders
JEL classification: N33; N93

1. Introduction

Rural crisis can act as a catalyst for migration. Rural 'push' forces have played a large part in explanations of increased levels of migration and urbanization in nineteenth-century Europe (see Moch (2003)) as well as in present-day developing countries (Parnwell, 1993). While harvest failures are often the proximate cause of rural crises, the associated demographic effects are determined primarily by underlying socio-economic structures that shape the resilience of rural livelihoods, such as landownership patterns, income diversity and

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communal organization (Devereux, 2007). At the same time, both historical and present-day migration research has over the past decades increasingly stressed the high degree of selectivity involved in migration behaviour, dismissing the idea of a uniform and automatic effect of rural push forces on emigration (Williamson, 1990; Massey et al., 1993; de Haas, 2010). While no one is likely to deny the role of rural 'push' forces, then, many questions remain with regard to the actual relationship of such forces to migration dynamics in Europe's long nineteenth century. This article aims to shed new light on some of these questions by means of an instructive case study on the basis of unique data, which allow for a quantitative analysis of key demographic and economic data at the municipal level in the wake of the rural crisis of 1845–1847 in the Flemish countryside, when a series of dramatic harvest failures exacerbated an already existing crisis of rural industry and long-term processes of peasant marginalization. While Flanders is an interesting case because of the coincidence of a severe crisis with seemingly modest migration levels, the data used are unique in that they measure a number of economic characteristics as well as yearly in-migration and out-migration at the village level. This avoids having to rely on calculated migration residuals and/or on larger geographical units of analysis (see for instance Ó Gráda and O'Rourke (1997)) – two oft-used methods which, as we will demonstrate, in fact provide a distorted view of the actual patterns of mobility involved. The insights gained by this analysis therefore not only throw new light on the social history of Belgium during the transition from preindustrial to industrial society, but also on the influence of rural 'push' factors on migration patterns in nineteenth-century Western Europe and on the dynamics of crisis migration in general.

The first section will relate the central research question of this study to the broader historiography of migration in nineteenth-century Europe. The second section will provide the background to our case study by discussing existing insights with regard to the Flemish crisis of the 1840s. The third section will describe the main source materials used. Subsequently, the empirical analysis will be presented in three steps: first, a discussion of aggregate population dynamics in the 1840s, secondly a discussion of the seven indicators of local social and economic structure that function as independent variables in our analysis, and lastly the examination of multivariate regression models to measure and isolate the effects of the selected variables on local migration dynamics in the wake of the 1845–1847 crisis.

2. A rural exodus? Push forces in nineteenth-century migrations

In the course of the long nineteenth century, Western Europe was transformed from a largely rural and agricultural society into a highly urbanized and industrialized region. Between 1750 and World War I the number of people living in towns of more than 5000 inhabitants increased sevenfold, while their proportion in relation to total population grew from 12 to 41% (Bairoch, 1988). Both contemporaries and early historiography attributed this spectacular growth in urban population to large-scale migrations from the countryside to towns in response to a disruptive process of modernisation that increasingly undermined traditional rural living conditions (Jackson and Moch, 1996). The mass transatlantic migration of many millions of Europeans in the latter half of this period has likewise traditionally been explained as the desperate move by the uprooted in the wake of the increasing marginalization of especially rural livelihoods (Handlin, 1951). More recent studies, however, have tended to retreat from this simple but powerful image of rural exodus in favour of views that stress the resilience of coping mechanisms in rural communities (Groote and Tassenaar, 2000), continuities with earlier patterns of geographical mobility (Pooley and Turnbull, 1998), the importance of return and intra-rural migration (Hochstadt, 1999), or the selectivity of migration patterns (Williamson, 1990; Hatton and Williamson, 1998). These approaches stress that it was not necessarily the poorest who moved, but rather a subset of the population that was relatively well equipped to make the most of newly emerging opportunities (Moch, 2003).

While such revisions have helped to introduce more nuance into the view of nineteenth-century migrations, much is still unclear as regards the precise relationship between the selectivity of migration and the disruptive economic, social and political changes that *were* taking place in this period, including the disintegration of rural livelihoods, and rising levels of mobility, urbanization and pauperization (Lucassen and Lucassen, 2009; Lees and Lees, 2010). The extent of migration selectivity is likely to have increased with the costs of moving and decreased with the intensity of push forces (Clark, 1972; Chiswick, 1999). Dribe (2003a) for instance attributed the low levels of migration among poor, landless people in nineteenth-century Sweden to a lack of attractive destinations within affordable distances in combination with prohibitively high costs of long-distance overseas migration – which even under the high-pressure conditions of Ireland remained a relatively selective affair (Ó Gráda and O'Rourke, 1997; Ó Gráda, 2000): it was not the poorest who emigrated. Moreover, not only travel

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costs per se but also the *familiarity* of certain destinations played an important part in governing migration selectivity (Lesger, 2006; Rosental, 2006), which helps us to understand why established migration connections tended to reinforce themselves (Baines, 1991). As access to migration information and networks reduced both the material and emotional costs of moving, established patterns of migration could in turn become less selective over time (Wegge, 1998). Rather than desperate moves towards the unknown, nineteenth-century migrations emerge from the existing literature as the selective results of balanced decision-making processes, in which the costs of moving and access to migration information were important mediating forces – but whose relative importance in relation to structural push forces remains unclear.

One of the key questions here is the role of rural push forces themselves in the dynamics of nineteenth-century migrations. Many rural historians have demonstrated how the capital-intensive reorganization of large-scale agriculture, the marginalization of small-scale landholding and common rights and the decline of rural industry all contributed to the structural disintegration of rural livelihoods in different regions (Snell, 1985; Humphries, 1990; Moch, 2003). Now, in the light of recent observations on the relative selectivity of migration, it is important to re-evaluate the impact of structural push forces on migration patterns and population redistribution in Europe's long nineteenth century. Was rural impoverishment an overriding cause of increased mobility? Was this generally the case, or only for certain groups, certain regions or in certain circumstances?

3. The crisis of the 1840s and *la dépopulation des Flandres*

Here we aim to contribute some answers to these questions by focussing on migration dynamics in the wake of a specific and acute form of rural pressure: the subsistence crisis of the 1840s in the Flemish countryside. The proximate cause of the crisis of the 1840s in Flanders, as elsewhere in Europe, was a series of harvest failures in the years 1845–1847 (Vanhaute et al., 2007). Underlying this subsistence crisis, however, was a structural crisis that was fed by the build-up of demographic pressure and the decline of the rural linen industry in the previous decades. The area that until the French Revolution made up the County of Flanders was characterized – with the exception of the fertile coastal area where large capital-intensive farms dominated – by labour-intensive small-scale agriculture that succeeded in realising high yields despite relatively infertile soils (Thoen, 2001). The 'success' of Flemish husbandry at the end of the *ancien régime* allowed for a strong growth of the rural population, which almost doubled between 1750 and 1850. Already densely populated, the population density in Flanders increased from c. 120 inhabitants per square km in 1700 to 180 in 1800 and to more than 240 by 1840, one of the highest levels in Europe. In the first half of the nineteenth century alone, total population increased from about one million to almost 1.5 million. This unprecedented population growth led to a further subdivision of land and a growing number of landless villagers. By the middle of the nineteenth century, the large majority of Flemish farms was smaller than 2 ha – i.e. below the threshold necessary to survive on the basis of agriculture alone, even though the widespread adoption of the potato from the eighteenth-century onwards had significantly increased the average yield in calories per hectare. The fall in average farm size was, moreover, accompanied by the growing importance of leasehold to the detriment of peasant ownership, and by a sharp rise in land rents, adding to the plight of smallholders (Vanhaute, 2001).

The proliferation of micro-holdings and landlessness in the period 1750–1850 therefore went hand in hand with an increasing reliance on the rural linen industry as a complementary or even main source of income for many villagers in the inland regions. Although projections in the literature vary, it is estimated that the Flemish linen industry reached its zenith in the first decades of the nineteenth century, when it employed more than a third of the active rural population, and in some areas more than 80%. The marked expansion of the rural linen industry relied on the local cultivation of flax and the self-exploitation of cheap manual labour from unemployed and underemployed landless or virtually landless households (Jacquemyns, 1929; Vandenbroeke, 1979; Kint, 1989). As the Industrial Revolution entailed a process of increasing mechanization in textile production, primarily in England but also for instance in Ghent, and both domestic and export markets shrank in the wake of Belgian independence (1830), the Flemish rural linen industry rapidly lost ground to cheaper mechanically produced textiles. The precise start of the decline of the rural linen industry is subject to debate, but there is no doubt that after 1835 the trend was clearly downwards. By 1840 the situation was so dramatic that Parliament launched an inquiry into the situation of the Flemish linen industry and put forward several (unsuccessful) initiatives for the revival of cottage industry. Already many of the spinners and weavers included in the government reports were unemployed, and even if they were still at work they suffered a marked decline in wages. References to spinners' wages of only 30 centimes per day were no exception, about the price of 1 kg of wheat bread. Even

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more dramatically, the number of unemployed spinners and weavers continued to increase and by 1850 the Flemish rural linen industry, which in 1840 had employed at least 300,000 spinners and weavers, was as good as wiped out (Enquête sur l'industrie linière, 1841; Gubin, 1983; Kint, 1989; Coppejans-Desmet, 1994).

The build-up of population pressure in the previous decades and the structural decline of rural industry explains why the subsistence crisis of 1845–1847 hit the Flemish provinces disproportionately hard, although other Belgian regions were also severely hit. The first blow was the potato blight, *Phytophthora infestans*, which arrived in Belgium in July 1845 and led to the loss of 95% of the harvest in Flanders, with knock-on effects for subsequent harvests until 1850. The ensuing food shortage was dramatically exacerbated when bad weather conditions in 1846 led to marked falls in bread-grain harvests as well as pea and bean harvests, leading to a combined loss of essential food produce of more than two-thirds. In terms of food prices the crisis reached its peak in the latter half of 1846 and the first half of 1847, when potato, rye and wheat prices were two to four times the levels of 1844 (Vanhaute, 2007). From a longer perspective, the subsistence crisis of 1845–1847 was long felt, and inaugurated a drawn-out process of economic marginalization of 'poor Flanders' in the course of Belgium's industrialization process (Mokyr, 1976; Van der Wee and Veraghtert, 1978; Vandenbroeke, 1984).

The immediate effect of the crisis was a population decline in the provinces of East and West Flanders, the only instance of net population loss recorded for Belgian provinces before World War I (Jacquemyns, 1929). Published aggregate results for the two Flemish provinces confirm a rise in mortality of 27% in the years 1846–1848 as compared to the numbers of deaths in 1841–1845, with a peak in 1847 (+40%). The numbers of births in the crisis years fell by 18%, and marriages by 30% (Vanhaute, 2007). The proximate causes of death in the crisis years were not so much starvation as primarily the spread of infectious diseases, especially typhus (Devos, 2006). Underlying the high death toll was the structural undernourishment of the Flemish villagers due to the cumulative undermining of their living conditions, which led to a particular combination of health deficiencies dubbed *la maladie des Flandres* by contemporaries (anaemia, paleness, loss of strength and voice, lethargy), which made them particularly vulnerable to the famine diseases of the late 1840s (Jacquemyns, 1929). Notwithstanding the upswing in death rates and heart-breaking references to scenes of starvation, scholars maintain that the Flemish subsistence crisis of the 1840s remained a 'near-famine', in which true starvation was kept at bay (Vanhaute, 2007; Vanhaute and Lambrecht, 2011). Especially when compared with the dramatic effects of the potato blight in Ireland, where an estimated one million of the eight million Irish died and another million left, the overall rise in mortality in the Flemish 1840s was indeed limited (Mokyr, 1983; O'Rourke, 1995; Ó Gráda and O'Rourke, 1997; Vanhaute et al., 2007).

In a similar vein, the predominant view in Belgian historiography is that the impact of the crisis of the 1840s on migration levels was modest. Although the Flemish were legally free to move, either within the country or abroad, most historians observe that relatively few did so, as Flanders' net migration deficits remained limited (Jacquemyns, 1929; Stengers, 1978), and migration pressures were primarily deflected into increased involvement in commuting and seasonal mobility (Mahaim, 1910; Van der Wee and Veraghtert, 1978; Deprez and Vandenbroeke, 1989; Goddeeris and Hermans, 2011). While it is clear that the crisis of the 1840s did not give rise to a rural exodus, however, another strand of research has pointed to its role as a watershed in the Belgian process of urbanization and its coincidence with an overall increase in rates of mobility (Kittell, 1967; Eggerickx and Poulain, 1993), and a marked rise in the numbers of rural Flemish in-migrants in various Belgian cities (De Metsenaere, 1978; Van den Eeckhout, 1980; Poulain and Foulon, 1981; Pasleau, 1994; Oris, 1996; Winter, 2009). Although the 'hungry forties' therefore seem to have played some kind of a role in fostering increased migration among at least some of the Flemish, the actual ways in which the complex rural push forces influenced migration patterns remain unclear. Were *gross* levels of migration at the local level as low as aggregate *net* figures at the provincial level seem to suggest? If so, why were overall migration levels so low if the crisis was so severe? And why did those who did move, do so? To what extent was their migration behaviour directly governed by structural economic factors, and to what extent was it stimulated by migration traditions and channels of information?

4. Statistical data at the level of municipalities: sources and limits

We hope to shed more light on the relation between rural crisis and migration dynamics by means of a quantitative analysis of key economic and demographic data from the local context of departure: the Flemish municipalities, corresponding more or less to individual villages and towns. At mid-century, the two provinces of East and West Flanders had 541 municipalities in all. The 515 rural municipalities had a median population of 1505, and the 26 official towns one of 8676. The early Belgian

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administration was remarkable in its precocious taste for systematic population registration and the collection of statistical data on various aspects of the country's demographic, social, economic and cultural developments, which resulted among other things in the carrying-out of relatively well-organized population, agricultural and industrial censuses at regular intervals from a comparatively early date. These various censuses, reports and enquiries, sometimes published, sometimes not, have together produced a staggering host of figures of varying quality on a wide range of phenomena at different administrative levels (Leboutte and Obotela, 1988; Bracke and Vanhaute, 2005; Eggerickx and Sanderson, 2010). The larger the unit of analysis, the more feasible the collection and comparison of such data for individual researchers. This helps to explain why existing research using nineteenth-century statistical data has often tended to use the level of provinces or *arrondissements* (grouping together some fifty municipalities on average) as the smallest unit of analysis (Jacquemyns, 1929; Lesthaeghe, 1977). Yet the larger the geographical unit of measurement, the blunter the overall comparative analysis, especially in the light of the considerable local and regional variation that characterized nineteenth-century Belgium. Research using local units of analysis has on the other hand necessarily focused on a small selection of data, often amounting to case studies at the level of a single village or town, hindering a comprehensive and comparative view of the dynamics involved (Winter, 2009). Thanks to the systematic collection of nineteenth-century statistics at the municipal level in a single database managed by the Lokstat project, it is possible for the first time to compare and research these statistical data for a large number of observations at the local level.[1]

For the following quantitative analysis we have made use of Lokstat data from the agricultural census of 1846, the population census of 1846, and the *Mouvement de la population* from 1841 to 1850, which together provide key data on local property relations and demographic dynamics (births, deaths, in-migration, out-migration and population size) in the 1840s. We complemented these data with the unpublished local returns to two provincial enquiries into the linen industry in 1840. The resulting database with key data on the 541 municipalities in East and West Flanders provides the basis from which to test various hypotheses on the relation between the crisis of the 1840s and migration dynamics. The analysis of course depends on the value of the contemporary figures assembled, but as argued in Appendix A, these can be considered reliable enough to produce comparative insight into the causal dynamics at play. Another shortcoming is that all the calculated demographic rates are crude rates, as we have no data to control for the age structure of the population. Yet a unique advantage of the data is that they include direct observations not only on the numbers of births and deaths, but also on those of in-migration and out-migration at municipal level. Whereas existing studies for the nineteenth century often necessarily rely on indirect and residual measures of migration, often for comparatively large units of analysis (Ó Gráda and O'Rourke, 1997; Ó Gráda, 2012), the Flemish data allow us to measure and single out directly and systematically the four components of population change at the level of individual towns and villages.

Although figures from municipalities rather than districts or provinces provide many important advantages, it is important to realise that the view offered by these local statistical data is still an aggregate one. They provide no indication of the direction of the moves involved, nor of the individual characteristics of those who left and who stayed put – which means that questions of geography and individual selectivity of migration patterns remain largely outside the analysis here. Other types of studies are therefore necessary to complement the insights derived from the approach adopted in the following pages: reconstructions of migration fields linking places of departure and arrival are needed to bring the role of geography and connectivity into the picture (e.g. Oris, 1997; Rosental, 1999; Lesger, 2006), while only life-course analysis on the basis of micro-data can bring into view the role played by gender, age, occupation and other individual characteristics (e.g. Dribe, 2003b; Kok, 2004). Yet what the data do allow us to do, is to examine systematically the influence of structural economic and social conditions at the local level on population growth components in general, and migration rates in particular, by means of a quantitative analysis probably more comprehensive and robust than has been possible so far for Flanders or even any other European region.

5. Population dynamics in the 1840s

Before we descend to the level of individual municipalities, it is helpful first to discuss the aggregate population dynamics in the Flemish provinces by analysing the overall rate of births, deaths, in-migrations and out-migrations. Although our prime concern lies with in-migration and out-migration dynamics, it is relevant to take into account the evolution of birth and death rates for two reasons. Firstly, they provide some – be it imperfect –

[1] These data were made available via the "Historical Database of Local Statistics – LOKSTAT, Ghent University", under the directorship of Eric Vanhaute and Sven Vrielinck.

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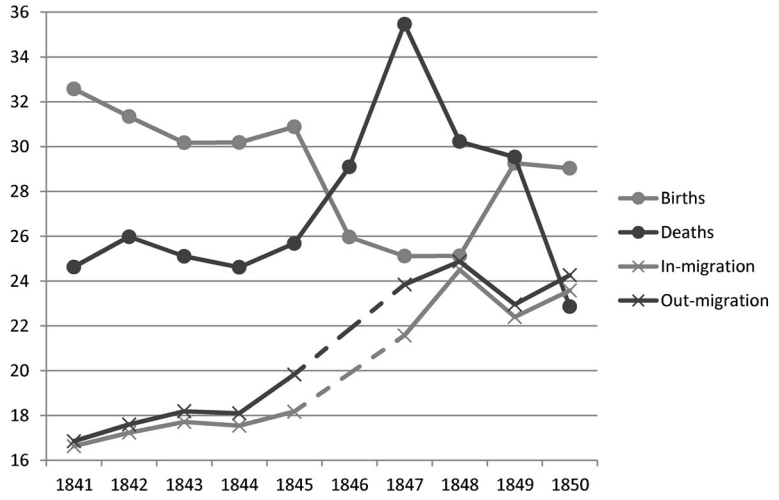

Graph 1. Average municipal birth, death, in-migration and out-migration rates in East and West Flanders, 1841–1850 (weighted average per 1000 inhabitants).

indication of the severity of the crisis in terms of its effects on mortality and fertility (Galloway, 1988; Walter and Schofield, 1989; Bengtsson et al., 2004). Secondly, and in the context of this article most importantly, including birth and death figures will allow us to dissociate dynamics of natural increase from those of migratory increase.

The evolution of aggregate population dynamics in the 1840s for the provinces of East and West Flanders as compiled from municipal data on the *Mouvement de la population* (Graph 1) confirms that the crisis effects were felt most keenly in the years 1846–1848, when the combined effects of increased mortality and lower birth rates transformed the positive 6 per 1000 average annual rate of natural increase of 1841–1845 into a natural deficit of 6 per 1000. In addition, the overall evolution of municipal migration rates, i.e. the average number of recorded moves in and out each municipality, provides an indication of the effect of the crisis on mobility.[2] While underregistration implies that these can be taken as minimal figures only, the recorded migration rates point to a marked increase in mobility in the wake of the crisis. Both in-migration and out-migration rates in the years 1847–1848 were some 30% higher than in 1841–1845, and they continued at a higher level in the following years. One caveat here is that the administrative reorganization of population registration in 1846 no doubt contributed to the observed increase in migration rates because of better registration – a point to which we shall return (see also Appendix A). The trend nevertheless appears to have been upwards, and the observation that out-migration outnumbered in-migration is congruent with Jacquemyns' (1929) identification of a (modest) net migration deficit for the whole of the provinces. At the same time, the underlying figures imply that gross mobility within the provinces was far more important than net migration figures at provincial level would suggest.

The evolution of the four components of population change in the wake of the crisis indicates that dynamics of population decline went together with important *shifts* in the distribution of the population (Table 1).[3] While the total population of the two provinces recorded an average decrease of 9 per 1000 per year in 1847–1848, the 26 official towns – which in 1846 included more than 400,000 of the 1.4 million inhabitants – maintained their population size, despite an excess of deaths over births. Out-migration rates were equivalent in the cities and countryside, but in-migration rates were significantly higher in towns than in villages, contributing to urbanization. The other side of the picture was that the Flemish countryside recorded a considerable population decrease in 1847–1848, congruent with Jacquemyns' (1929) observation on *la dépopulation des Flandres*, to the equivalent of a negative yearly growth rate of 1.3%, spurred by both a substantial natural deficit (−9 per 1000) and net migration losses (−4 per 1000).

[2] Unfortunately, migration data are missing for 1846 (see Appendix A).

[3] As to the definition of 'rural' and 'urban', for reasons of data comparability, we necessarily followed the administrative status of the municipalities in the provincial administration: those 26 municipalities of 'urban' status were counted as cities – even though in reality some could arguably be considered large villages – and the remaining 515 municipalities of 'rural' status were considered as countryside.

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Table 1
Components of population change in East and West Flanders, 1847–1848 (weighted yearly averages per 1000 inhabitants).

	Population growth	Births	Deaths	In-migration	Out-migration	Natural increase	Net migration
Cities	0.0	28.6	33.1	28.8	24.4	−4.4	4.4
Countryside	−12.5	23.8	32.8	20.8	24.4	−9.0	−3.5
Total	−9.0	25.1	32.8	23.0	24.4	−7.7	−1.3

Although some localities may have tried informally to discourage entry by the very poorest, no legal regulations restricted movement within Belgium or abroad.[4] All in all, relatively few Flemish migrants left the province, let alone the country. Most moved over short distances within their provincial boundaries. While towns were the greatest net beneficiaries of the increase in mobility, the countryside also recorded significant increases in both out-migration and in-migration rates. These aggregate analyses, then, confirm that important population dynamics developed in Flanders in the wake of the 1845–1847 crisis, whose *net* result was a modest population shift from the countryside to the towns. So far, it has always been assumed that all demographic dynamics worked in the same direction in occasioning this 'depopulation' of rural Flanders (Jacquemyns, 1929). The data analysed here, however, demonstrate that the proximate causes of this aggregate population shift involved a complex interplay of birth, death and gross migration rates, which varied considerably from one village to the next, and remain hidden from any aggregated perspective. Map 1(a) to (f) provide a cartographical view of population dynamics in 1847–1848 at the smallest possible unit of analysis, that of the municipality. The maps distinguish five quintile groups, ranked from low to high, for overall population change, birth, death, in-migration, out-migration and net migration rates respectively.

[4] Local *ancien régime* migration restrictions had been abolished by French legislation, and had lost all legal force in the Belgian Kingdom, which guaranteed its inhabitants free choice of residence (Merlin, 1826; Tielemans, 1843). To be sure, mobility by the very poorest could be legally countered on the basis of vagrancy legislation, yet this remained a troublesome and expensive affair (Vercammen, 2014). As far as 'regular' migration was concerned, only if newcomers applied for relief in their new place of residence, then settlement legislation allowed authorities of their place of origin (and only they, as they were the ones who had to reimburse their relief costs), to request for their return. Merely an administrative measure, these *renvois* remained the exception and could not be legally enforced: if ignored, the migrant risked only exclusion from relief provisions in the place of residence (see also Picard et al. (1909); Winter (2008)). In practice, some cities and villages appear to have tested the limits of legality by using guardsmen to dissuade 'beggars' from entering at the height of the crisis (Ronsijn, 2004), but their actual effect is difficult to gauge.

Map 1(a) shows that total population losses in the crisis years were greatest in the central region of Flanders. Municipalities with net population growth, on the other hand, were mainly either urban & suburban centres or were situated along the coast and the northern border. These changes in population size were the net result of four distinct dynamics, expressed in Map 1(b) to (f). Birth rates were relatively high in the west and in the northeast, and very low in the central region of Flanders. The cartographic expression of death rates is roughly the inverse: high death rates in inner Flanders, low death rates along the western and north-eastern peripheral areas. The maps for in-migration and out-migration, however, are not each other's opposite, but reflect a roughly similar pattern that is distinct from birth and death rates: rather than broad regional differences, we see a patchwork of municipalities with high levels of mobility, mainly around towns and in the polder regions, and with low levels of mobility situated predominantly, but not exclusively, in a broad southern strip from the southeast to the southwest.

These preliminary analyses bear out how local demographic dynamics during the crisis years were marked by important geographical differences. The maps on births and deaths suggest that the crisis was felt mainly in the inland regions, as existing research maintains. Cross-sectional comparisons of birth, death and migration rates, however, are in themselves insufficient measurements of the demographic effects of the crisis, as the observed variance might be attributable in part to structural differences that existed prior to the crisis. In the multivariate analyses pursued further in this article we shall therefore look not only at cross-sectional differences between birth, death and migration rates during the crisis years, but also at *changes* in these rates when compared to pre-crisis levels. What the figures presented so far in any case do lay bare, is that birth & death rates and migration rates followed very different patterns: birth and death rates tended to be inversely related, while in-migration and out-migration rather kept in step with each other, and bore no evident relation to statistics of births & deaths. At this point, we cannot rule out that the observed correlation between in-migration and out-migration is an administrative construct attributable to variations in local diligence: if the completeness of migration registration varied

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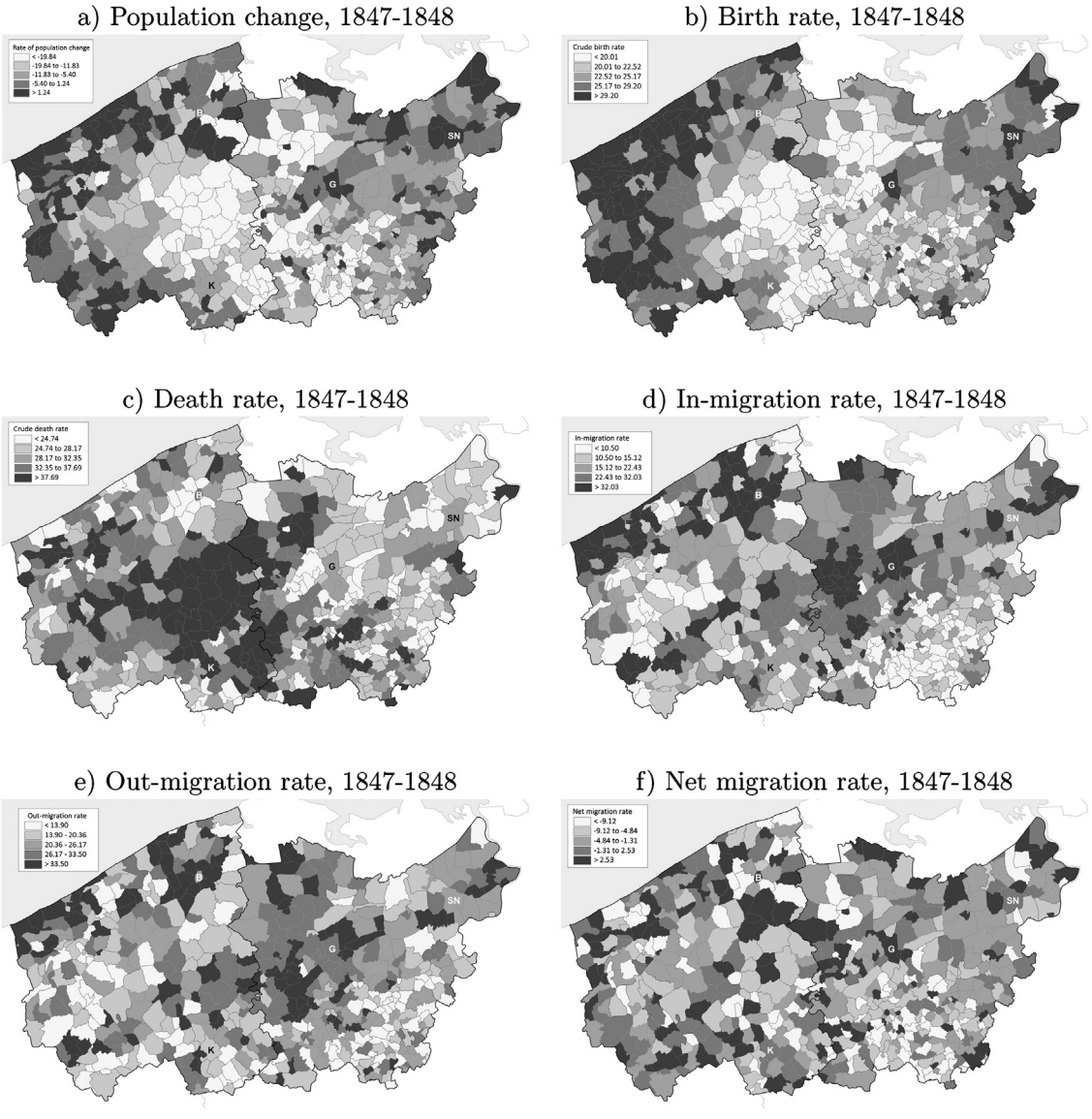

Note: B = Bruges, G = Ghent, K = Kortrijk, SN = Sint-Niklaas.

Map 1. Demographic dynamics in Flemish municipalities, 1847–1848 (yearly rates per 1000 inhabitants).

considerably from one village to the next, this could have produced a spurious correlation between recorded in-migration and out-migration rates – a question to which we shall return later (see also Appendix A). To the extent that we can take recorded levels as at least indicative of inter-municipal differences, however, this suggests that the causal dynamics behind in-migration and out-migration rates were distinct from those behind birth and death rates, and that changes in population size themselves are a bad indicator of underlying demographic dynamics. In the remainder of this article, we shall focus on uncovering which factors shaped the observed variations and changes in components of population growth in the Flemish countryside in the wake of the crisis, in order to evaluate the influence of rural push factors on migration dynamics in particular. To do so, we shall first measure the effect of key indicators of social and economic structure on rates of births, deaths, in-migration and out-migration in 1847–1848, and subsequently control for pre-crisis levels in 1843–1845. Before estimating multivariate regression models that allow us to single out the relative impact of these variables, we shall first discuss

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the main characteristics and expected effects of these selected indicators in the following paragraph.

6. A varied picture: key indicators of local social and economic structure

Existing studies by rural historians have laid bare a great variety in social and economic structure in the Flemish countryside. The most important distinction to be made in this respect is that between coastal and inland Flanders. Whereas the sandy soils of inland Flanders were typified by the increasing subdivision of land between self-exploiting cottagers, the polder areas on the fertile strip of reclaimed land along the coast and in the north were characterized by large capital-intensive farms drawing on – often seasonal – wage labour (Thoen, 2001, 2004). In addition, considerable variation existed within the inland areas (see for instance Ronsijn (2013)).

On the basis of our literature survey of studies of the nineteenth-century rural history of Flanders and on rural 'push' forces and migration dynamics, we singled out seven indicators of local social and economic structure from contemporary censuses and reports as independent variables for further statistical analysis covering the 515 rural municipalities in East and West Flanders, viz. the proportions of landless, smallholders, land-owning farmers, non-natives, relief recipients, the number of inhabitants, and the number of spinners and weavers relative to population size.[5] To control for the provincial specificities in terms of demography and data collection (see Appendix A), we also introduced a dummy variable for the provinces of East and West Flanders. Our choice of these particular variables was motivated by a wish to select proxies for the most important social and economic structures that can be expected to have had an influence on migration dynamics, for which data were available for (almost) all municipalities in Lokstat or the additional source materials used (see Appendix A), and for which the inter-correlation was not too high (to avoid collinearity in the regressions). These variables however do not include a direct measure of the gravity of the subsistence crisis, for instance in the form of local food prices. Rather, they are proxies for variations in local socio-economic structure which can be assumed to correlate with vulnerability to the crisis. The following paragraph will describe these variables, briefly discussing their main characteristics and geographical spread in mid-nineteenth-century rural Flanders. As our unit of analysis is that of the municipality, all measures used in the subsequent analysis are unweighted means.

A first variable used to measure the effect of agricultural property relations was the proportion of *landless households* in each municipality on the basis of the 1846 population and agricultural census: this is the proportion of households that held no agricultural land, whether as owner or tenant. Existing literature has demonstrated that landlessness increased markedly in the Flemish countryside in the first half of the nineteenth century, and has tended to consider this as a condition of increased vulnerability, especially as alternative livelihoods such as rural industry were under severe pressure (Vanhaute, 2001). Without any access to land, wage-dependent households are likely to have been doubly hit by the combination of rising unemployment and rocketing food prices. Furthermore, we can expect landlessness to have facilitated migration, in the sense that landless households had no local investment in land and were therefore 'freer' to leave than landed families (Groote and Tassenaar, 2000; Dribe, 2003b; Paping, 2004). However, Kok (2004) found that even fully proletarian families could be reluctant to move because of the opportunity costs involved: certain assets remained tied to their place of residence, such as rights to poor relief, a network of personal contacts and the possibility for all family members of finding work. Dribe (2003a) also observed that landless people in nineteenth-century Sweden were unlikely to emigrate, which he attributed to the prohibitively high costs of long-distance migration. Considering that migration in Flanders was legally unrestricted and mainly short-distance, the direct costs of migration were probably relatively low. Map 2(a) provides an indication of the geographical distribution of landlessness in 1846, which in the Flemish countryside was 24% on average, with a standard deviation of 17%. While the municipalities in the upper two quintiles were relatively widely spread, the highest levels of landlessness were to be found around cities and in commercialised regions relying heavily on wage labour, such as the coastal polders and the commercialised *Waasland* area in the northeast. The municipalities in the lowest quintiles were concentrated predominantly in the *Land van Aalst* located in the southeast, and in the inland area of West Flanders.

A second key variable relating to agricultural property relations is the relative importance of *smallholders* in

[5] We have limited the remainder of the analysis to *rural* municipalities, excluding the 26 administrative cities, because the focus of this study is on the local impact of rural crisis on migration patterns, and because several of the independent variables used, have completely different implications in an urban than in a rural context (e.g. proportion of landless households or of spinners and weavers).

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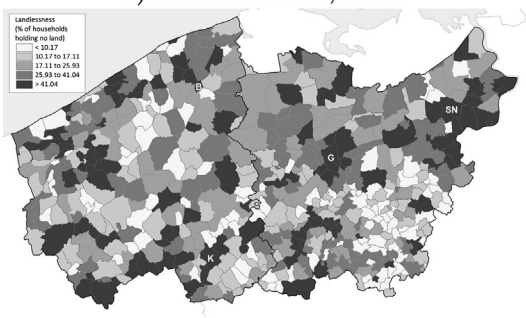
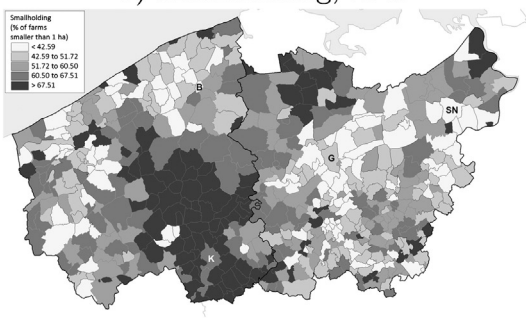
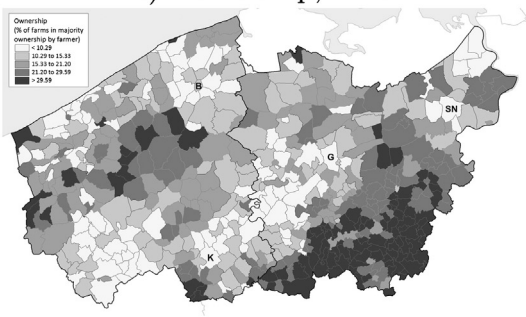
a) Landlessness, 1846



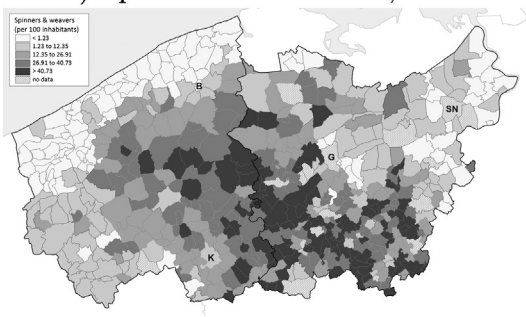
b) Smallholding, 1846



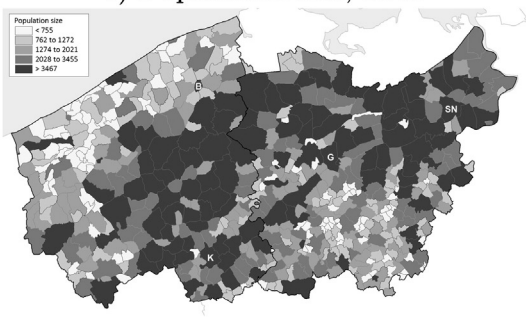
c) Ownership, 1846



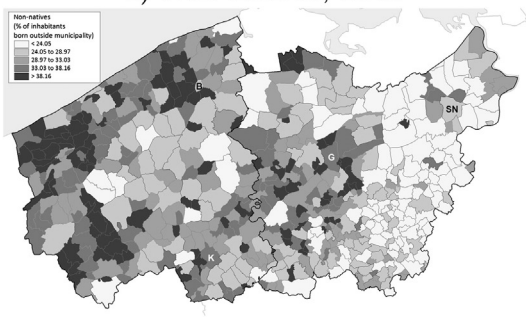
d) Spinners and weavers, 1840



e) Population size, 1846



f) Non-natives, 1846



g) Relief dependence, 1846

Note: B = Bruges, G = Ghent, K = Kortrijk, SN = Sint-Niklaas.

Map 2. Key social and economic characteristics of Flemish municipalities, 1840/1846.

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each municipality. As mentioned above, the period 1750–1850 witnessed a growing subdivision of land in the Flemish countryside, a factor which according to existing literature led to increasing impoverishment and vulnerability. As smallholders were also those most heavily involved in potato cultivation, they can be expected to have been most heavily hit by the potato blight in terms of food shortage (Vanhaute, 2001). As a proxy for the importance of smallholding, we have taken the proportion of farms smaller than one hectare according to the 1846 agricultural census. As a farm size of two hectares is considered the absolute minimum to provide a sufficient livelihood for a peasant household on the basis of agriculture alone, this criterion is one that unambiguously refers to cottagers whose agricultural income was plainly insufficient for survival. If impoverishment, vulnerability and exposure to food shortages acted as independent 'push' factors conducive to crisis migration, we would expect high levels of smallholding to correlate with high levels of out-migration. Averaging 54% for the whole of the Flemish rural municipalities with a standard deviation of 16%, the geographical spread of smallholding is represented in Map 2(b). With the three highest quintiles recording levels of more than 50%, smallholding reached record levels in sandy inland Flanders and particularly the eastern half of West Flanders. It was relatively low in the coastal area and in the centre of East Flanders.

A last key variable as regards agricultural property relations is the relative importance of *ownership* of farmland as against leasehold. It was explained above how the first half of the nineteenth century witnessed a marked increase of leasehold to the detriment of land ownership, especially among small farmers. Together with a sharp rise in land rents, this contributed to the dire straits in which many Flemish peasants found themselves on the eve of the crisis of the 1840s (Vanhaute, 2001). At the same time, ownership of land can be considered a stronger buffer against out-migration than rented land, as it implies a stronger connection to the soil (Paping, 2004). However, to the extent that it was tied up with long-standing relations of patronage and credit, leasehold could also act as a brake on migration at least as much as land ownership did (Scott, 1977). Existing research, however, has argued that traditional relations of patronage were waning under the growing demographic pressure of the nineteenth century, giving way to more impersonal and market-driven contracts that severed the ties between tenants and landlords (Vanhaute and Lambrecht, 2011). The proportion of owned land can therefore be taken as a rough proxy for the strength of the ties between farmers and their land, measured as the proportion of farms where more than half of the land was owned by the farmer. To the extent that this implied a more secure access to land and food as well as stronger ties to the soil, we expect high levels of ownership (i.e. low levels of leasehold) to have correlated with low levels of out-migration, and low levels of ownership (i.e. high levels of leasehold) with higher levels of out-migration. Averaging 21% with a standard deviation of 12%, there was a clear geographical bias (Map 2c): land ownership was strongest in the *Land van Aalst* in the south-eastern quadrant, and in the middle area of West Flanders around Torhout.

Next to agriculture, the main economic activity in the Flemish countryside was, as mentioned above, the rural linen industry, which in the course of the 1840s was wiped out in a catastrophic structural crisis. As alternative income opportunities such as cottage textile production were vital to rural families with little or no land, we expect that their loss of income made erstwhile spinners and weavers disproportionately vulnerable to the food shortages of the 1845–1847 crisis. As a proxy for the dependence of its population on the linen industry, we have used the number of *spinners and weavers* for each municipality according to two detailed provincial enquiries of 1840, as a proportion of the total population in the same year. We assume that villages with the highest levels of spinners and weavers were those hardest hit by the industrial crisis of the linen industry of the early 1840s. If loss of income and employment opportunities acted as rural push forces, we would expect high proportions of spinners and weavers to correlate with high levels of out-migration. The collected data on municipal involvement in the linen industry shows an average of no less than 24 spinners and weavers per 100 inhabitants, with a standard deviation of 21%. Involvement in the linen industry varied considerably from region to region (Map 2d). Virtually absent in the polder regions of coastal Flanders, it was concentrated most heavily in the central Flemish regions.

In addition to the above four proxies for local economic structure, we have also included three variables on population size and social composition in the statistical analysis. The first of these was *population size*, based on the 1846 census results. Other things being equal, population size can be expected to have correlated with higher levels of occupational differentiation and more diverse income opportunities, making larger villages more resilient against the impact of rural crisis (Roessingh, 1970). If differential employment and income opportunities played a role in guiding migration

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decisions, we expect population size to have correlated with high levels of in-migration and low levels of out-migration. A second variable on population composition introduced in the statistical analysis is the proportion of residents born outside the municipality's boundaries according to the 1846 census, which for the whole of the Flemish countryside averaged 31%, with a standard deviation of 8%. The proportion of *non-natives* is in a sense a cumulative stock variable that was the result of previous in-migration and out-migration flows. Non-native residents can be expected, other things being equal, to have been less attached to their place of residence than native-born residents, and therefore more likely to leave: existing local research has confirmed for different contexts that out-migrations tend to include a disproportionate number of former in-migrants, and that in-migration and out-migration rates often move in tandem (Jackson, 1997; Winter, 2009). The proportion of non-natives also provides a (partial) proxy for the familiarity of migration in a given local context, and for the 'stock' of migration information present. In this sense, its inclusion in the analysis can help to gauge the importance of migration customs and networks in generating migration flows that has so often been stressed in recent migration literature. Map 2(f) shows that the spread of non-natives was far from even. It was highest in the polder region and border region of West Flanders, and lowest in the eastern half of East Flanders, confirming the image of a relatively immobile countryside of inner Flanders.

Finally, the last variable with regard to social composition introduced in the analysis is the proportion of *households in receipt of poor relief* according to the 1846 census, which for the whole of the Flemish countryside averaged 24%, with a standard deviation of 9%. Existing research has demonstrated that the crisis of the 1840s went hand in hand with a spectacular increase in overall public relief expenses, especially in the year of the census, which was no doubt indicative of the acute impoverishment taking place (Ducpétiaux, 1850; Vanhaute and Lambrecht, 2011). With per capita relief expenses however still modest, it is difficult to treat the proportion of households in receipt of poor relief as a direct proxy of the degree of poverty in a municipality, as the availability of local resources together with formal and informal rules and conceptions on deservingness and entitlement complicated the relation between poverty and relief dependence (Winter, 2008). To the extent that it was a proxy for absolute poverty and poverty acted as a 'push' force, we would expect high levels of relief dependence to correlate with high levels of out-migration. At the same time, however, the existence of large-scale poor relief could also have acted as an important buffer mechanism in coping with food shortages (Vanhaute and Lambrecht, 2011). If this was the case, this would have mitigated its effect on out-migration, and might even have constituted a 'pull' factor with a positive effect on in-migration (de Swaan, 1988). Map 2(g) shows that relief dependence was low along the coast and in the northeast, and highest in the inland regions, with record levels in pockets of municipalities around Torhout, Izegem and Kortrijk in West Flanders, and to the northwest of Ghent and in the western half of the *Land van Aalst* in East Flanders.

7. Regression analysis

Let us now integrate the different variables discussed in a multivariate model in order to examine and isolate their effects on local population dynamics during the period in question. We shall first analyse cross-sectional

Table 2
Estimated effects on birth, death and migration rates.

	(1)	(2)	(3)	(4)
	Births	Deaths	In-migration	Out-migration
	Estim. coeff.	Estim. coeff.	Estim. coeff.	Estim. coeff.
Landlessness	0.038*	0.064**	−0.024	−0.056
Smallholding	−0.030	0.090***	0.040	0.033
Ownership	0.024	−0.021	−0.207***	−0.151***
Linen	−0.124***	0.110***	−0.036	−0.016
Population size ('000)	−0.782***	1.014***	0.740*	0.677*
Non-natives	−0.007	0.057	0.723***	0.726***
Relief dependence	0.045	0.087*	−0.175**	−0.096
West-Flanders	3.104***	4.776***	−4.837***	−5.491***
R-squared	0.35	0.25	0.30	0.24
N	506	506	506	506

* p < .05; ** p < .01; *** p < .001. Huber–White robust standard errors are used. Maximal VIF = 2.08.

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differences in the crisis years 1847–1848, before turning in a following stage to differential changes when compared with pre-crisis levels. While we remain primarily interested in the effects on out-migration and in-migration in the Flemish countryside, we have also included births and deaths as dependent variables in order to relate possible effects on migration to the overall dynamics of population change. Adopting the approach of earlier studies to use geographical areas as the unit of analysis and to assume independence of observations (Ó Gráda and O'Rourke, 1997; Hatton and Williamson, 1998), we estimated linear regression models for each of the four dependent variables. From our sample of 515 rural municipalities we removed four observations that exerted a disproportionate influence in the parameter estimations (Cook's distance greater than 1) and five observations because of incomplete data. All regression models below are therefore based on the remaining 506 rural municipalities in East and West Flanders. Table 2 presents the estimated coefficients for each of the four regression models, which together provide a comprehensive view of the effects of the explanatory variables on birth, death, in-migration and out-migration rates.

The first column summarizes the effects on birth rates. In addition to the provincial dummy, the only other variables in the model to have an effect on birth rates were landlessness, the importance of the linen industry and population size: municipalities with a large proportion of landless residents recorded comparatively more births, while those with relatively large populations and those heavily engaged in linen industry recorded relatively low birth rates. The size of the effects can be seen from the estimated coefficients. For instance, a one-unit increase in population size (an additional 1000 inhabitants) is associated with a .782 unit decrease in the expected birth rate, after holding the other variables in the model constant. If the number of spinners and weavers increases from 20 to 30 per 100 inhabitants, then the predicted birth rate decreases by 1.24 per 1000. The second column shows that next to the provincial dummy variable, also the variables landlessness, smallholding, linen, population size and relief dependence were positively associated with death rates, while the proportions of land ownership and non-natives did not have any significant effect. The third and fourth columns, finally, present the estimated coefficients for the in-migration and out-migration models. They show that the proportion of non-natives has a strong positive correlation with migration levels: an increase in the proportion of non-natives by 10 percentage points increases the expected migration rates by around 7 per 1000. The proportion of land ownership correlates negatively and population size correlates positively with both in-migration *and* out-migration. In addition, mobility levels in West Flanders were below those in East Flanders and the degree of relief dependence is negatively associated with in-migration rates, while the relation with out-migration is not significant. The models explain between 24 and 35% of the variation in the dependent variables. Heteroscedasticity-robust standard errors were used for the significance tests about the coefficients and the diagnostics point to multicollinearity not being a problem in these models.

What, now, can be learned from this multivariate analysis? *Landlessness* had a positive effect on birth and death rates, while we found no effects on migration rates. The positive effect on both birth and death rates is surprising as these usually work in opposite directions, but this falls outside the main explanatory focus of this study. While the effect of death rates appears consistent with earlier assumptions on the greater vulnerability of landless villagers, the positive effect on birth rates might be attributable to the frequently observed higher fertility among proletarianized groups (Tilly, 1984). The absence of any significant effect on migration rates is unexpected. Part of the explanation might lie in the opportunity costs of moving (rather than the – relatively low – direct costs, see also Kok (2004)), and in the fact that high levels of landlessness in a municipality might have correlated with the presence of a diverse employment structure in situ, including for instance brick making and the production of clogs, lace and baskets (Ronsijn, 2013). The importance of *smallholding* had no significant effects on birth and migration rates, but did have an effect on mortality. Given that subsistence cultivation of potatoes was commonest among smallholders, we expected them to have been the first to suffer from food shortages in the context of a generalized potato plant infection. Although smallholding villages appear to have been disproportionately affected in terms of mortality, it is important to note that this did not result in higher out-migration rates: rather than leaving, the victims died. The importance of *land ownership*, in contrast, had no effect on birth and death rates, but did have considerable negative effects on migration rates: as expected, villages with comparatively high levels of land ownership were significantly less mobile than those where leasehold was the norm. The estimated effect is particularly large on in-migration rates, which highlights the importance of land available for lease in the orientation of migration flows: a large share of land leased, other things being equal, was likely to attract newcomers looking for a plot. The effect on out-migration rates might be the result of lease prices becoming unbearable during crisis years or of land owners being more tied to their land and therefore less

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likely to leave (or a combination of both). The importance of the *linen industry* had the expected significant effects on birth and death rates, but not on migration rates. It is worth noting that the estimated coefficient in the out-migration rate model is negative, but the effect is not significant. These results are therefore inconsistent with theories that explain observed out-migration flows from the Flemish countryside as a push-driven event related to the crisis of the linen industry. The linen crisis did have an important effect on population shifts, but this largely resulted from both lower birth rates and higher mortality rates in municipalities that were heavily reliant on the linen industry. *Population size* had a negative effect on birth rates and a positive one on mortality rates, which could be related to the higher rate of epidemic infection in areas with higher population densities (although larger communities are not necessarily more densely populated, in general they are). Population size was positively related to migration rates, implying that larger municipalities in general had higher degrees of turnover than smaller ones, which might be explained by their overall more diverse opportunity structure. There was no effect from the proportion of *non-native-born residents* on municipal birth and death rates. As expected, marked effects were found on migration rates which points to the high degree of turnover associated with migration patterns and the role of chain migration, social networks and migration traditions. The degree of *relief dependence* was – other things being equal – positively associated with mortality, which suggests that the poor relief variable is primarily a measure of poverty. There is a negative effect on in-migration and no significant effect on out-migration rates, implying not only that migrants avoided municipalities with high degrees of relief dependence, but also that residents of those municipalities were if anything likely to stay put. It is important to note that, overall, the observed effects of the independent variables on population growth components were clearly distinct in the sense that some variables (landlessness, smallholding, linen) correlated mainly with births and/or deaths, while other variables (ownership, non-natives) correlated mainly with migration. Where there was correlation with migration, moreover, the effects on in-migration and out-migration often had the same sign, confirming that they often moved in tandem.

So far, the multivariate analysis has allowed us to measure the influence of a number of local characteristics on the population growth components that forged *la dépopulation des Flandres* in the years 1847–1848. Some of the effects we observed, for instance that of landlessness on birth rates, may however have been wholly unrelated to the crisis: villages with a high proportion of landless residents may have recorded above-average birth rates in 'normal' years too. We know that on the whole birth rates went down while death and migration rates went up in the wake of the crisis, but in order to properly evaluate if and where they did so disproportionately we should take the pre-crisis situation into account. We can therefore expand our model to analyse the *change* in birth, death and migration rates of the years 1847–1848 relative to the pre-crisis years 1843–1845 in order to evaluate the particular influence of the crisis on the correlations observed in our model.[6] Additional (conditional change) models of the specification

$$Y_{i,1847\text{–}48} = \beta_0 + \sum_{j=1}^{k} \beta_j X_{ij} + \beta_{k+1} Y_{i,1843\text{–}45} + \varepsilon_i$$

were estimated in which the pre-crisis birth, death and migration levels (for the years 1843–1845) were included in the models as a predictor variable. By controlling for the pre-crisis levels $Y_{1843\text{-}45}$, more powerful causal inferences can be made regarding the relations between the independent variables and $Y_{1847\text{-}48}$.[7] Table 3 presents the results.

Obviously, the bottom four lines in the table show that pre-crisis birth, death and migration levels were strongly related to crisis levels, but what interests us here are the remaining effects of the other independent variables. The first two columns show that the direct effects of the crisis in terms of lower birth rates and higher death rates were hardest felt in municipalities with a greater population size and high degrees of smallholding and linen involvement. The increase in in-migration rates during the crisis years was less in municipalities with high degrees of land ownership, and greater where a high proportion of non-natives was already present. The only significant association we find for the change in out-migration rates, is with the proportion of non-natives. It is worth noting that the method applied here largely rules out that the observed migration effects are attributable either to variations in local registration diligence or to better registration after 1846.[8] The other effects we

[6] Ideally, a fixed effects model would be estimated but this is not possible because no longitudinal data exist on any of the independent variables.

[7] An alternative specification would be to regress $\Delta Y_t = Y_t - Y_{t-1}$ on X_j, but Finkel (1995) argues that coefficients in such models are biased and tend to be negatively correlated (such 'regression to the mean effects' appears to be present in our data as well).

[8] This is not to say that these may not have had an effect, but only *alongside* the effects observed here. We in a sense control for improved registration by comparing cross-sectional differences after 1846, and control for local variations in registration diligence by comparing with pre-1846 rates for each of the municipalities. Unless registration after 1846 improved disproportionately in certain villages that shared specific characteristics in terms of the independent variables, differences in local diligence cannot have influenced the results in Table 3. We see no reason to assume it did.

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Table 3
Conditional change models (controlling for pre-crisis levels).

	(1)	(2)	(3)	(4)
	Births	Deaths	In-migration	Out-migration
	Estim. coeff.	Estim. coeff.	Estim. coeff.	Estim. coeff.
Landlessness	−0.004	0.038	−0.048	−0.066
Smallholding	−0.063***	0.059*	−0.004	0.004
Ownership	0.027	−0.037	−0.121**	−0.077
Linen	−0.053***	0.122***	−0.006	−0.007
Population size ('000)	−0.478***	1.053***	0.101	0.310
Non-natives	−0.005	0.037	0.489***	0.545***
Relief dependence	0.009	0.061	−0.092	−0.045
West-Flanders	1.800***	3.848***	−1.716	−1.749
Birth4345	0.632***			
Deaths4345		0.397***		
Inmi4345			0.513***	
Outmi4345				0.424***
R-squared	0.61	0.30	0.42	0.35
N	506	506	506	506

* p < .05; ** p < .01; *** p < .001. Huber–White robust standard errors are used. Maximal VIF = 2.26.

observed in the earlier regression models, were not attributable to the crisis per se.

What do these main results from the additional regression models now teach us about the dynamics of migration in the wake of the crisis? We have seen above that overall out-migration *and* in-migration rates increased in the years following the 1845–1847 subsistence crisis, which can be attributed at least in part to growing rural pressure and which implied at least some upsurge in overall mobility. Yet our analysis has shown that local out-migration levels did not necessarily vary in relation to the severity of the crisis. As far as high mortality and low birth rates can be considered as proxies for the severity of the crisis, rather the opposite appears to have been the case. While the smallholding and linen-involved villages were – as expected – hardest hit by the subsistence and industrial crisis in terms of surplus mortality and birth deficits, these were clearly not the villages that recorded the highest rates of departure. The variation in in-migration rates, in addition, shows migrants' avoidance of those municipalities hardest hit by the crisis.

The only variable conducive to disproportionately high rates of departure (and, incidentally, also of arrival) was the proportion of non-native residents. The importance of this correlation is further illustrated by Graph 2, which represents the change in in-migration and out-migration rates during the crisis years in relation to the proportion of non-natives in each municipality. A high proportion of non-natives was clearly conducive to a higher increase in crisis mobility: whereas the municipalities in the lowest decile in terms of the proportion of non-natives recorded an average increase of 1.9 and 2.0 per 1000 inhabitants in out-migration and in-migration rates respectively, the corresponding figures were 12.9 and 12.0 per 1000 inhabitants in the top decile, or more than six times as high.[9] The proportion of non-natives, was in itself of course a measure of prior mobility. It is important to note that those moving were not necessarily prior in-migrants, rather that municipalities with more migrants were also those recording the highest increase in in-migration *and* out-migration rates in the wake of the crisis. What this suggests is that the migration information and migration networks embodied by the 'stock' of prior migrants are likely to have produced spill-over effects, facilitating migration decisions among native-born and non-natives alike. To the extent that these migration information networks spilled over administrative boundaries, there is a sense in which municipal units of observation were not completely independent. In any case the likely effect of both intra-municipal and inter-municipal spill-overs, even if not given full credit by assuming independence of

[9] This disproportionate increase was even more noticeable if taken into consideration that pre-crisis out-migration and in-migration rates (for the years 1843–1845) were already substantially higher in municipalities with larger shares of non-natives: an average rate of 23.8 and 20.1 per 1000 inhabitants respectively in the top decile as against 14.2 and 9.7 in the lowest decile. The net result of the disproportionate increase in the years 1847–1848 was therefore a further widening of the difference in migration rates according to the proportion of non-natives, where the ratio between average migration rates of the top and lowest deciles grew from a factor 2.1 in 1843–1845 to a factor 2.8 in 1847–1848 for in-migration rates, and from 1.7 to 2.3 for out-migration rates.

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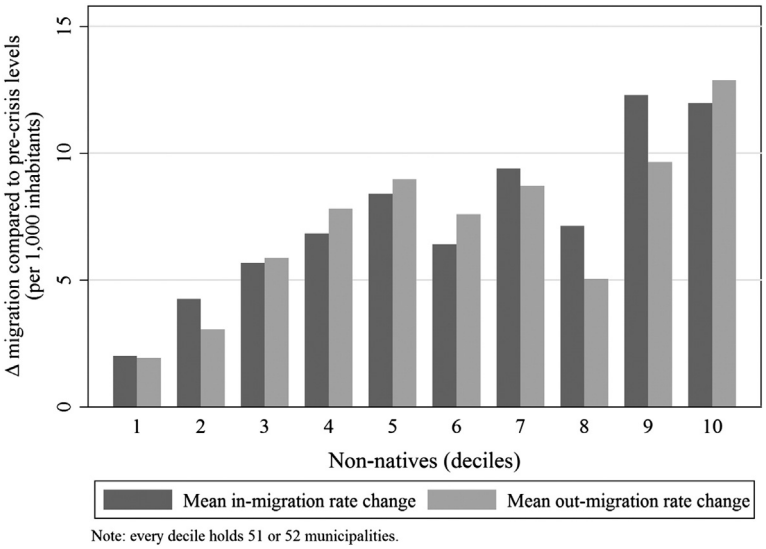

Graph 2. Migration response and the proportion of non-natives.

observation, was to strengthen the influence of prior migration on future migration. What we end up with here, then, is a conclusion often encountered by migration historians: migration breeds migration.

It is important to note here, however, that the observation that migration responses to crisis were *in the last instance* determined by pre-existing migration traditions, does not rule out the importance of underlying macro conditions in shaping these migration traditions. While the latter can help to explain geographical differences in migration intensity at a particular time of crisis, it begs the question as to what fostered different patterns of prior in-migration in the first place. To deal with this question adequately, other data and methods are needed, which can compare time series for various regions with dissimilar migration experiences. Still, the results of the first regression models have suggested that one underlying factor of (prior) mobility in rural Flanders was the relation between leased and owned land, with large degrees of ownership being conducive to low levels of migration and vice-versa. In other words, the ties between farmers and their land appear to have been an important structural variable in determining rural levels of migration. Here, the continued importance of (partial) peasant ownership and paternalist landlord–tenant relationships in nineteenth-century Flanders, although on the wane, may go a long way in explaining the comparatively modest emigration levels in this region, even during a crisis as acute as that of the 1840s. In a positive sense, they may have provided an essential buffer in times of subsistence crisis by providing direct access to food. In a negative sense, the ties to the land or to the landlord also limited overall migration horizons, so that migration was unlikely to have been considered an option even in the direst of times.

8. Conclusions

Important lessons can be learned from this study, we believe, which have wider resonance than the case of Flanders in the 1840s. A first consideration is methodological. The study demonstrates that we need to be careful to dissociate birth and death rates from in-migration and out-migration when measuring the demographic effects of a crisis: they appear to have been influenced by other factors, and can move in opposite directions. In addition, the oft-used strategy of employing relatively large units of analysis, such as *arrondissements*, provinces or counties, risks brushing over substantial variations at the local level and obscuring patterns of mobility taking place *within* these boundaries. When analysed at the local level, as was possible in this study thanks to the exceptional Lokstat dataset for Flemish municipalities, in-migration and out-migration appear not as opposites, but rather moved in the same direction. Net migration figures, let alone population change – often used to measure demographic dynamics in the nineteenth century – are therefore an inadequate and potentially misleading measure of overall migration patterns, even more so when measured at large spatial units of analysis. In rural Flanders, where a structural increase in the vulnerability

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of livelihoods coincided with a severe harvest crisis in 1845–1847, the net effect of the crisis was not so much one of emigration, but rather an overall moderate increase of mobility, which took place largely within the confines of the two provinces and was largest in those municipalities with a greater tradition of migration.

A second major result from the analysis pursued here, therefore, is that the prior existence of migration networks and traditions appears to have been more important than structural socio-economic differences in stimulating migration in crisis years – although it must be admitted that we could use only indirect measures of the gravity of the crisis. The subsistence crisis did entail an overall increase in mobility rates, but its local effects were mediated by dynamics of selectivity that were unevenly distributed. On the basis of our analysis, it was not the severity of the crisis that appears to have been decisive, but the familiarity with migration options. The implication is that it was not the greatest victims of the crisis who were most likely to leave, but rather those with greatest access to migration information. Although thrown on the road in the wake of the crisis, their move was probably not a desperate one, but rather one relying on well-established circuits, avoiding the poorest destinations, and positively selecting specific groups with the most to gain. Migration, then, comes out of the analysis more as a question of possibility than of necessity, more as a question of choice than of constraint. While this implies a positive view of migration in line with recent emphases on agency and selectivity in migration behaviour, it also corroborates Ó Gráda's (2000) and Dribe's (2003a) pessimistic view of the possibilities of migration as an adaptive strategy in times of structural rural crisis: accessible only to certain groups, it did not offer a way out for those who suffered most heavily. Those hit the hardest by the crisis, do not appear to have had much choice. Those who died, did not leave.

On the whole, the results of this study confirm recent revisions of the view of nineteenth-century migration that call into question the idea of a general, push-driven rural exodus, and highlight the importance of dynamics of selectivity. Whereas the costs of migration have been invoked as one important mediating factor (Wegge, 1998; Ó Gráda, 2000; Dribe, 2003a), this probably played only a minor role in the Flemish case. While high costs may help to explain the observed low levels of long-distance emigration, the fact that most moves were short-distance and potential destinations nearby suggest that costs of travel were on the whole too low to explain differential rates of migration between municipalities. As far as the migration response to the crisis of the 1840s in Flanders is concerned, access to local migration information, networks and traditions appears to have been more decisive than the costs of migration (cf. Rosental, 1999; Lesger, 2006). There is of course a circular ring to this argument: while migration networks tend to reinforce themselves and can reduce migration costs over time, they need to become established first. Although adequately analysing these feedback effects requires other data and methods, this study in any case suggests that in Flanders relatively strong ties to the land represented an important underlying structural condition in explaining the overall modest migration response to the subsistence crisis of the 1840s.

Appendix A. Variables used

This appendix describes briefly the different variables used in the quantitative analysis. The majority of these have been made available to us by the Lokstat project, in turn based on the published results of the population census of 1846 (PC1846), agricultural census of 1846 (AC1846) and the yearly *Mouvement de la population* from 1841 to 1850 (MP). Unfortunately, migration data are absent from MP1846, and no systematic, direct data on local variations on the severity of the crisis (e.g. changes in local food prices or harvests) are available. Although the published census results pose some problems of interpretation and underregistration, in general both the population census and agricultural census of 1846 are taken as reliable by historians (for a general discussion, see Vanhaute (2003)). Dynamic registration of births, deaths, in-migration and out-migration as yearly recorded in the *Mouvement de la population* probably improved after the generalization of population registers after 1846, but remained far from accurate (Vrielinck, 2013). Overall, registration of migration is considered to have been less accurate than that of births and deaths, and out-migration is considered to have suffered more from underregistration than in-migration, although probably more so in cities than in the countryside (Leboutte and Obotela, 1988; Winter, 2009; Eggerickx, 2010; Vrielinck, 2013). On the basis of existing studies, we see no reason to suppose that problems of inaccurate registration – although definitely present – were biased towards villages with particular characteristics in terms of the independent variables used in the analysis. Although probably underrecorded and certainly not entirely accurate, then, the available migration data can be considered sufficiently representative of differences in migration intensity between different municipalities to function as a useful proxy in the quantitative analysis pursued in this article (although less central to our research design, the same argument can be made about the data on births

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& deaths). As long as inaccurate registration remained 'random' in relation to our independent variables, this would imply only an underestimation of the observed effects of our model.

Lokstat dependent variables:

- *Birth rates* = recorded births (excluding stillbirths) in MP * 1000/population size on 31 December of the previous year in MP
- *Death rates* = recorded deaths (excluding stillbirths) in MP * 1000/population size on 31 December of the previous year in MP
- *In-migration rates* = (recorded moves into the municipality in MP + recorded deaths in the municipality by non-residents in MP) * 1000/population size on 31 December of the previous year in MP
- *Out-migration rates* = (recorded moves out of the municipality in MP + recorded deaths of residents outside the municipality in MP) * 1000/population size on 31 December of the previous year in MP

Lokstat independent variables:

- *Landlessness* = (number of recorded households in PC1846 – number of farms in AC1846) * 100/number of recorded households in PC1846 (see Vanhaute, 2003)
- *Smallholding* = (number of farms of less than 0.5 ha in AC1846 + number of farms between 0.5 and 1 ha in AC1846) * 100/total number of farms in AC1846
- *Land ownership* = (number of farms of which the land is completely held in ownership in AC1846 + number of farms of which more than half of the land is held in ownership in AC1846) * 100/total number of farms in AC1846
- *Population size* = factual population in PC1846
- *Non-natives* = number of residents born outside the municipality in PC1846 * 100/factual population in PC1846
- *Relief dependence* = number of households receiving public relief in PC1846 * 100/total number of households in PC1846

The data on the number of *spinners and weavers* were not derived from Lokstat, but from other sources. The degree of involvement in linen production in Flanders has been the subject of various studies, several of which have been highly critical of some of the published data on the number of people involved the first half of the nineteenth century (Gubin, 1983). During our research we have indeed encountered several faults, mistakes, misinterpretations and miscalculations, not in the least among one of the most authoritative studies on the issue (Jacquemyns, 1929). For this research, however, we were able to locate and retrieve two original provincial enquiries dating from 1840 and which have so far not been used for research, although they solve many of the number problems pointed out by Gubin (1983). Their importance for the social history of Flanders cannot be underestimated. The enquiry for East Flanders (Rijksarchief Beveren, Provinciaal Archief Oost-Vlaanderen 1830–1850, 4558–4560) contains the original *nominal* returns of each municipality *with the names of the households* and details on their involvement in spinning, weaving and flax preparation. The enquiry for West Flanders (RA Brugge, Derde afdeling Provinciebestuur c. 1821–1850, 490/01) contains only totals for the numbers of spinners and weavers for each municipality. We are grateful to Thijs Lambrecht from the State Archives for helping us to locate the latter source.

Comparing these data with available published figures, we found that the East Flemish enquiry apparently formed the basis for the totals mentioned in the *Exposé de la situation de la Province de la Flandre Orientale* for the year 1841 (annexe 21), restated in the *Moniteur* in 1843. The totals from the West Flanders enquiry correspond to the totals mentioned in the *Rapport sur l'état de l'administration dans la Flandre occidentale fait par la Députation permanente au Conseil provincial* of the year 1840, and to the totals restated in the *Enquête sur l'industrie linière* (annexe 14). The demonstrably local, and in the case of East Flanders, even nominal, origin of the data lend credibility to their trustworthiness. Although the enquiry begs certain questions of interpretation (were only full-time spinners and weavers counted? what about those unemployed at the time of the enquiry? were children counted?), there is no reason to expect a systematic bias in the way the enquiry has been interpreted at the local level. In other words, although the precise meanings of 'weaver' and 'spinner' remain difficult to pin down, the numbers of 'weavers' and 'spinners' given can function as a useful and reliable *proxy* by which to measure differences in terms of greater or lesser involvement in the linen industry. A final important problem in using these data as a proxy was that in the case of West Flanders the numbers of spinners and weavers are given, while in the case of East Flanders the numbers of wheels and looms in operation were recorded. In order to arrive at comparable figures, we have 'converted' the numbers of wheels and looms to spinners and weavers according to the ratio derived from the aggregate data for East Flanders in the

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Enquête sur l'industrie linière with those in the *Exposé de la situation de la Province de la Flandre Orientale* (1841). The resulting number of spinners and weavers was then expressed as a percentage of factual population size per municipality according to PC1846. That the two provincial series might not be fully comparable due to the different nature of the *enquêtes*, is one of the reasons why we introduced the dummy variable to differentiate between East and West Flanders.

Appendix B. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.eeh.2014.11.001.

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